REMARKS/ARGUMENTS

The ADVISORY Office Action of 03/28/07 has been carefully reviewed, and these remarks are responsive thereto. Reconsideration and allowance of the instant application are respectfully requested. Entry of an amendment and reconsideration of remarks made in applicants' response efiled March 20, 2007 are respectfully requested.

In her Advisory Action, the Examiner indicates in item 11: "The request for reconsideration has been considered but does NOT place the application in condition for allowance because: Applicants argue that Merkey does not disclose a communication system...wherein at least two host processors communicate capacity and load information to other host processors", examiner respectfully disagrees and states that Merkey in column 9 lines 31-50 discloses the communication between multiple processors of their load and capacity and its maintenance..." The Examiner also admits that if shown or suggested "there communication system is disclosed in Merkey," not in Kitain. Consequently, the Examiner's argument crumbles because Merkey indeed fails to disclose the recited communication system and associated elements such as "broadcasting" and "balance" and "time constant." According to another claimed aspect – Merkey fails to teach and indeed teaches away from "bringing its search queue into balance with another host processor in response to receipt of said broadcast capacity and load information according to a time constant;" i.e., Merkey cares minimally about balancing.

The Examiner's reliance on Merkey column 9, ll. 31-50 is misplaced. The entire passage, applicants' emphasis added, reads as follows:

> "FIG. 7 further illustrates the processor thread queue control structure 81 for processor P1; the control structures 81 of the other processors are organized in a similar manner. The control structure 81 includes a load indicator 86 which indicates how heavily *the corresponding processor* is loaded. That is, the load indicator 86 provides a measure indicating how much of the available processing capacity is being spent running code in application threads 66 (FIG. 6) versus how much capacity is spent running the idle thread 84, waiting for I/O to complete, or otherwise supporting the application threads 66.
>
> A presently preferred load indicator 86 includes a sleep request count 88 that indicates

> how often the threads 66 running *on the corresponding processor* have been suspended in mid-execution. Lower values in the sleep request count 88 indicate busier processors, and higher values indicate idler processors. Those of skill in the art will appreciate that other measures may also be used as load indicators 86, including without limitation, *cycles spent in the idle thread* 70, 84."

The Examiner misreads the quotation as disclosing or suggesting that processors P1-P4 communicate with each other when it is clear that each processor maintains its own information about itself. Admittedly a corresponding Merkey processor communicates to the extent of searching another's unlocked queue as described below, while other threads are protected in a lockable queue 82, but this is searching, i.e. an obtaining by searching of one by another, not communication one to another or broadcasting as recited.

If the examiner is suggesting that a "sleep request count 88" is communicated by another processor to the corresponding processor, the examiner is mistaken as the words clearly indicate otherwise. Sleep request count is a very coarse measure of how busy a process is. Col. 9, ll. 47-50 state that, besides a "sleep request count 88" load indicators may also include "cycles spent in the idle thread 70, 84." These may each be indirectly an indication of "capacity," for example, according to the equation: load equals total capacity less cycles spent in the idle thread. But it is not an indication of load *and* capacity as recited, only one or the other. There is no communication among processors as recited. It is clear that Merkey teaches maintaining at a given processor "how heavily the corresponding processor is loaded" and a "sleep request count 88" and may alternatively use "cycles spent in the idle thread" as indicators of load. The preferred disclosed communication is not one with another processor but with a "global control structure 67" or by searching another's unlocked queue.

To the contrary to the Examiner's position, Merkey teaches away from applicants' "communication system" because a global control structure 67 is utilized which "includes a global dispatch queue 68 that holds threads 66 which are waiting for a processor." Merkey, consequently, fails to teach or suggest the communication system as recited. On the other hand, one processor may search an unlocked queue of another processor as follows.

Merkey col. 10, ll. 41-47 indicates:

> "When a processor Pn becomes available, a scheduler for that processor *searches* the (unlocked) queues 62 (of other processors) to locate a thread 66 to run on that processor (Pn). The processor is then allocated to that thread 66. If no application threads 66 are ready to run, the search will locate one of the idle threads 70, 84. Otherwise, the first application thread 66 found will get the processor," (our interpretation added).

Read together, these passages from columns 9 and 10 of Merkey suggest that searching occurs of unlocked queues of other processors but such searching by one processor of another is not "a communication system…wherein at least two host processors communicate capacity and load information to other host processors" especially in the context of "broadcasting" as recited.

In the first instance, the communication system as recited requires the communication of capacity **and** load. As indicated above, load and capacity are two variables that are related but are independent of one another. Thus, the examiner's allegations fail on at least two grounds 1) both capacity and load are not communicated in Merkey, only one or the other and 2) there is at best a "search" in Merkey and not "a communication system…wherein at least two host processors communicate capacity and load to other host processors" as recited especially in the context of a recited "broadcast" or "broadcasting."

For example, claim 42 clearly indicates "each … host processor…broadcasting its capacity and load to other host processors" which is not a Merkey search by one processor of another's unlocked queue. Claim 44 also recites "broadcasting its capacity and load" which is not a search. Broadcast is one to many, not a search by one of another. There is clearly a difference between a communicating or a broadcasting as recited and a Merkey searching which is in a reverse direction.

Claim 45 reads "bringing its search queue into balance with another host processor in response to receipt of said broadcast capacity and load information according to a time constant." Claims 46 and 48 recite "at least two host processors communicate capacity and load information to other host processors; selected host processors storing a database index in memory comprising nodes and data accessible via said nodes." Claim 66 recites: "each host processor broadcasting

its capacity and load information to other host processors" and later in the claim "bringing its search queue into balance with another host processor in response to receipt of broadcast capacity and load information according to a time constant..." Claim 72 is similar except uses "each" for "its." Again, it is strenuously urged that generally applicants' communication system as recited especially when coupled with the recited broadcast patentably distinguishes applicants' invention over Merkey's disclosure.

Another inventive aspect of many of the independent claims is a recited "balance." Balancing a processor/system of processors is not important to Merkey: Abstract "threads tend to stay with that processor unless the system load is severely unbalanced ..."; col. 5, ll. 51-54, "moving threads 44 between processors may severely degrade system performance because it undercuts the performance gains ..."; col. 11, ll. 21-23, "threads 66 tend to stay on a given processor until the system load becomes very uneven, with some processors being very busy and others being mostly idle."

In a system according to applicants' disclosure, tasks are waiting to be executed, not being executed as in Merkey. Consequently, there are no cache penalties for moving threads and so, for example, "bringing its search queue into balance" and "according to a time constant" or a related balance process is recited in claims and suggested to the examiner as another distinguishing feature of applicants' invention. Support is found at least at page 48, ll. 7-18, where "A time constant is utilized to avoid severe oscillations in host loading," and, as indicated above, Merkey doesn't care about oscillations in loading.

The examiner is respectfully requested to enter the amendments, reconsider the amended claims and draw a line of allowable subject matter as Merkey is clearly missing recited elements as indicated above, among others. Other applied references fail to make up for the deficiencies of Merkey.

The burden is on the Examiner to show in Merkey where the recited "communication system," "broadcasting," "balance" and "time constant" among other recited elements discussed in their response dated 20 March 2007 are found – none of these are found at col. 9, ll. 31-50, even in combination with col. 10, ll. 41-47 and other passages of Merkey relied upon thus far by the examiner.

CONCLUSION

Applicants respectfully submit that the instant application is in condition for allowance, and respectfully request reconsideration of all pending claims and solicit prompt notification of the same. However, if for any reason the Examiner believes the application is not in condition for allowance or there are any questions, the Examiner is requested to contact the undersigned at (202) 624-7325. Applicants have not earlier obtained an interview in this application. Applicants would appreciate the Examiner's contacting applicants' attorney at the number indicated below to schedule an interview to discuss the application before she issues a next office action.

Respectfully submitted,

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Dated this 20th day of April, 2007

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